

REMARKS¹

By the present Amendment, Applicants have amended the specification and claims 5 and 12 to improve their form, and have amended claim 1 to more appropriately define the invention. Claims 1-16 remain pending, in which claims 13-16 have been withdrawn from consideration as drawn to a non-elected invention.

In the Office Action, the Examiner objected to the specification for informalities; objected to claim 5 for lack of antecedent basis; rejected claim 1 on the ground of nonstatutory obviousness-type double patenting as unpatentable over claim 8 of U.S. Patent No. 6,465,742 (the '742 patent) in view of Okubora et al. (U.S. Patent No. 6,528,732)²; rejected claim 1 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of Sakamoto et al. (U.S. Patent No. 5,103,288) and Ohya et al. (U.S. Patent No. 5,531,945); rejected claims 1-4, 6, and 8-9 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of what the Examiner has characterized as "Applicants' admitted prior art" (APA)³; rejected claim 5 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of Shibasaki et al. (U.S. Patent No. 4,296,424); rejected claim 7 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of Yasuda et al. (U.S. Patent Pub. No. 2002/0100610); rejected claims 10 and 11 under 35 U.S.C. § 103(a) as

¹ The Office Action contains statements characterizing the related art and the claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

² The rejection listed on page 3 of the Office Action states that claim 1 was rejected as unpatentable over claim 1 of the '742 patent in view of Okubora et al. However, the substance of that rejection suggests that claim 1 was rejected as unpatentable over claim 8 of the '742 patent in view of Okubora et al. In addition, the Examiner mentioned U.S. Patent No. 6,844,504 on page 4 of the Office Action, which seems to be a typographical error. From the context of the Office Action, the Examiner apparently was referring to the '742 patent.

³ In making this rejection, the Examiner discussed Shibasaki et al., and in particular stated that Shibasaki et al. teaches how to form conductors from a photosensitive layer. Office Action, page 7. However, Shibasaki et al. is not a basis for this rejection. Moreover, none of the rejected claims, i.e., claims 1-4, 6, and 8-9, recites how to form conductors from a photosensitive layer.

obvious over Okubora et al. in view of Japp et al. (U.S. Patent No. 6,722,031); and rejected claim 12 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of Japp et al. and Hur (U.S. Patent No. 6,646,334).

Applicants submit that the amendments to the specification and claim 5 overcome the objections to the specification and the objection to claim 5, respectively. Applicants traverse the rejection of claim 1 on the ground of nonstatutory obviousness-type double patenting as unpatentable over claim 8 of the '742 patent in view of Okubora et al. However, in order to advance prosecution, Applicants submit herein a Terminal Disclaimer and respectfully request that the rejection of claim 1 on the ground of nonstatutory obviousness-type double patenting be withdrawn.

The rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of Sakamoto et al. and Ohya et al. should be withdrawn, because a prima facie case of obviousness cannot be established with respect to claim 1.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. M.P.E.P. § 2143, 8th ed., Revision of August 2005. In this application, no prima facie case of obviousness can be

established for at least the reason that the cited references fail to teach each and every element of claim 1.

Particularly, claim 1 recites, inter alia, "a wiring substrate having an insulating substrate with a porous structure including continuous pores and wiring conductors selectively formed in the pores." Emphasis added. The Examiner acknowledged that Okubora et al. does not teach "a substrate with a porous structure." Office Action, page 5. Therefore, Okubora et al. fails to teach or suggest at least the above-quoted element of claim 1.

Moreover, Okubora et al. also fails to teach or suggest at least "an electronic device directly connected to said wiring conductors formed in the pores," as recited in claim 1, emphasis added. The Examiner considered Okubora et al.'s patterns 43b and via holes 44 as corresponding to Applicants' claimed wiring conductors, and stated that Okubora et al.'s MMIC 50, allegedly corresponding to Applicants' claimed electronic device, is "directly connected to said wiring conductors substrate." Office Action, page 5. Applicants note, however, that MMIC 50 is NOT directly connected to patterns 43b or via holes 44. Rather, MMIC 50 is connected to patterns 43b or via holes 44 through connecting pads 44p, which is formed on the double-side printed circuit board 43, allegedly corresponding to Applicants' claimed wiring substrate. Okubora et al., Figs. 8C-8E.

Sakamoto et al. does not cure the deficiencies of Okubora et al. The Examiner alleged that Sakamoto et al. "discloses a substrate with a porous structure." Office Action, page 5. However, Sakamoto et al. merely teaches forming a porous insulating film 104, which is not a substrate. See, Sakamoto et al., col. 3, ll. 1-8. Therefore,

Sakamoto et al. fails to teach or suggest at least "a wiring substrate having an insulating substrate with a porous structure including continuous pores and wiring conductors selectively formed in the pores," as recited in claim 1.

Ohya et al. fails to cure the deficiencies of Okubora et al. and Sakamoto et al. Ohya et al. discloses a base board for printed wiring, where the base board comprises continuous porous material wrapped in a cloth. Ohya et al., ABSTRACT. Printed wiring can be produced on the base board by forming through holes, plating the base board with a metal, and then forming the intended printed wiring network. See Ohya et al., col. 9, ll. 40-44. Alternatively, printed wiring can be produced on the base board by plating the base board, forming through holes, plating the through holes, and then forming the intended printed wiring network. See Ohya et al., col. 9, ll. 44-47. Thus, Ohya et al. merely teaches forming conductors on the base board or in the through holes in the base board, rather than in the pores of the base board. Therefore, Ohya et al. fails to teach or suggest at least "a wiring substrate having . . . wiring conductors selectively formed in the pores," as recited in claim 1, emphasis added.

In view of the above, Okubora et al., Sakamoto et al., and Ohya et al., taken alone or in combination, fail to teach or suggest at least "a wiring substrate having . . . wiring conductors selectively formed in the pores" (emphasis added), as recited in claim 1. Therefore, claim 1 is patentable over Okubora et al., Sakamoto et al., and Ohya et al.

The rejection of claims 1-4, 6, and 8-9 under 35 U.S.C. § 103(a) as obvious over Okubora et al. in view of APA should be withdrawn, at least because Okubora et al. and

APA, taken alone or in combination, fail to teach or suggest each and every element of the rejected claims.

First, as mentioned above, Okubora et al. fails to teach or suggest at least "an electronic device directly connected to said wiring conductors formed in the pores," as recited in claim 1, emphasis added.

APA fails to cure the deficiencies of Okubora et al. APA merely teaches a multi-layered wiring substrate including porous sheets. APA does not teach or suggest at least "an electronic device directly connected to said wiring conductors formed in the pores," as recited in claim 1, emphasis added.

Therefore, Okubora et al. and APA, taken alone or in combination, fail to teach or suggest at least "an electronic device directly connected to said wiring conductors formed in the pores," as recited in claim 1, emphasis added. Accordingly, no prima facie case of obviousness has been established, and claim 1 and its dependent claims 1-4, 6, and 8-9 are therefore allowable over Okubora et al. and APA.

Finally, regarding the rejections of claims 5, 7, and 10-12 under 35 U.S.C. § 103(a), Applicants submit that these rejections are each based on a combination of Okubora et al. and one or more other references, including Shibasaki et al., Yasuda et al., Japp et al., and Hur. As noted above, Okubora et al. fails to teach or suggest each and every element of claim 1, from which claims 5, 7, and 10-12 depend. None of Shibasaki et al., Yasuda et al., Japp et al., and Hur overcomes the deficiencies of Okubora et al. For example, Okubora et al. fails to teach or suggest "a wiring substrate having an insulating substrate with a porous structure including continuous pores and wiring conductors selectively formed in the pores," as recited in claim 1. As Applicants

pointed out in the Remarks section of the Amendment filed on January 30, 2006, none of Shibasaki et al., Yasuda et al., Japp et al., and Hur discloses a substrate with a porous structure. See, Amendment of January 30, 2006, pages 8-11. Therefore, none of Shibasaki et al., Yasuda et al., Japp et al., and Hur teaches or suggests at least "a wiring substrate having an insulating substrate with a porous structure including continuous pores and wiring conductors selectively formed in the pores," as recited in claim 1. Consequently, no prima facie case of obviousness has been established and claims 5, 7, and 10-12 are allowable under 35 U.S.C. § 103(a).

In view of the foregoing remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: August 21, 2006

By: 
Qingyu Yin
Ltd. Rec. No.: L0222

Attachments:

1. Terminal Disclaimer
2. Information Disclosure Statement
3. Form PTO/SB/08
4. Petition for Extension of Time